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### (54) ATMOSPHERIC PRESSURE IONIZATION MASS SPECTROMETER

(57) Abstract:

PROBLEM TO BE SOLVED: To  
provide an atmospheric pressure  
ionization mass spectrometer suited  
to perform mass spectrometry at a

high S/N ratio by effectively focusing ions of high three-dimensional angles, while reducing the spread of the kinetic energy of the ions which may result from worsening of a vacuum.

**SOLUTION:** Ions ionized at an atmospheric pressure ionization source 3 are allowed to pass through sampling pores 15a, (b) and is incident on a first electrode system. The first electrode system comprises hemispherical grid electrodes 41, 42 and works as a decelerating system for the ions. The ions are thereafter incident on a second electrode system comprising hemispherical grid electrode 43, 44, are accelerated, and focused on a pore 21. The ions focused are guided to a mass spectrometry part 6 via an inlet port 19, subjected to mass spectrometry, and detected by a detector 8. Neutral particles that passed through the sampling bore 15b are blocked by a screen 45 and therefore not introduced into the mass spectrometry part 6.

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